

Technical Data

LAM-125 LAM-226

LAMINATING EPOXY

COMBINED FEATURES

Low viscosity for quick wet out of synthetic composite fabrics; especially effective with Kevlar® and carbon fiber.

Medium cure speed hardener provides 2 to 3 hours of working time at 77°F (25°C). A typical laminate will be gelled in 4 to 5 hours.

Optimized for hand wet out and machine impregnation in contact molding, vacuum bagging and Light RTM applications.

Room temperature cure properties suitable for many composite components and structures.

T_g as high as 207°F (97°C) with proper post cure providing excellent temperature stability and great part cosmetics.

Cost effective, high performance epoxy formulation for synthetic composite manufacturing.

Quality-control tinting is available at no extra charge; simply add "QC" after the product code on your order.

Shelf life is 3 years for resin and 2 years for hardener when properly stored³.

The New
Standard

EPOXIES for
Laminating
Infusion
Tooling
Assembly

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888-377-6738

ISO9001:2008 Certified

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HANDLING PROPERTIES

| Property | Standard | Units | 72°F (22°C) | 77°F (25°C) | 85°F (29°C) |
|----------------------|------------|---------|-------------|-------------|-------------|
| 150g Pot Life | ASTM D2471 | minutes | 71-87 | 56-70 | 36-46 |
| 500g Pot Life | ASTM D2471 | minutes | 50-62 | 46-58 | 32-40 |
| Viscosity Mixed | ASTM D2196 | cP | 696 | 544 | 402 |
| Viscosity (resin) | ASTM D2196 | cP | 1,731 | | |
| Viscosity (hardener) | ASTM D2196 | cP | 42 | | |

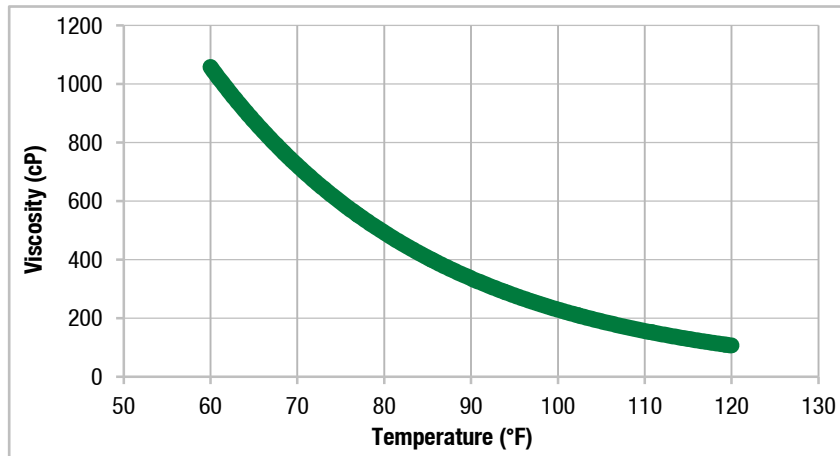
MIX RATIO

| Method | Resin:Hardener | Resin:Hardener |
|--------------|----------------|-------------------|
| Weight | 3.5:1 | 100:28.1 |
| Weight Range | 3.76:1–3.23:1 | 100:26.6–100:30.9 |
| Volume | 3.00:1 | 100:33.3 |
| Volume Range | 3.16:1–2.72:1 | 100:31.6–100:36.7 |

DENSITY

| State | Units | 72°F (22°C) |
|----------|---------------|-------------|
| Cured | lb/gal (g/cc) | 9.59 (1.15) |
| Resin | lb/gal (g/cc) | 9.58 (1.15) |
| Hardener | lb/gal (g/cc) | 8.06 (0.97) |

VISCOSITY VS TEMPERATURE



Test specimens were neat epoxy (without fiber reinforcement).
Typical values, not to be construed as specification.

LAM-125~LAM-226

LAMINATING EPOXY

MECHANICAL PROPERTIES

| Property | Standard | Units | 72°F (22°C) x 4 wk | 77°F (25°C) x 2 wk | RT Gelation + 120°F (49°C) x 8 hrs | RT Gelation + 140°F (60°C) x 8 hrs | RT Gelation + 180°F (82°C) x 8 hrs |
|--------------------|------------|-----------|-----------------------|-----------------------|--|--|--|
| Hardness | ASTM D2240 | Type D | 92 | 92 | 92 | 93 | 93 |
| Compression Yield | ASTM D695 | psi (MPa) | 16,700 (115) | 16,800 (116) | 14,400 (99) | 14,400 (99) | 14,400 (99) |
| Tensile Strength | ASTM D638 | psi (MPa) | 9,570 (66) | 8,100 (56) | 10,600 (73) | 10,600 (73) | 10,600 (73) |
| Tensile Modulus | ASTM D638 | psi (GPa) | 5.34E+05 (3.68) | 5.64E+05 (3.89) | 4.91E+05 (3.39) | 4.96E+05 (3.42) | 4.33E+05 (2.99) |
| Tensile Elongation | ASTM D638 | % | 2.1 | 1.7 | 3.8 | 5.6 | 7.2 |
| Flexural Strength | ASTM D790 | psi (MPa) | 17,100 (118) | 15,300 (105) | 18,800 (130) | 18,800 (130) | 18,800 (130) |
| Flexural Modulus | ASTM D790 | psi (GPa) | 5.36E+05 (3.7) | 5.86E+05 (4.04) | 5.39E+05 (3.72) | 5.08E+05 (3.5) | 4.37E+05 (3.01) |

THERMAL PROPERTIES

| Property | Standard | Units | 72°F (22°C) x 4 wk | 77°F (25°C) x 2 wk | RT Gelation + 120°F (49°C) x 8 hrs | RT Gelation + 140°F (60°C) x 8 hrs | RT Gelation + 180°F (82°C) x 8 hrs |
|------------------------------|-------------------------|---------|-----------------------|-----------------------|--|--|--|
| Tg DMA Peak Tan Delta | ASTM E1640 ¹ | °F (°C) | 160 (71) | 161 (72) | 189 (87) | 202 (94) | 226 (108) |
| Tg DMA Onset Storage Modulus | ASTM E1640 ¹ | °F (°C) | 146 (63) | 148 (64) | 169 (76) | 182 (83) | 207 (97) |
| Tg DSC Onset– 1st Heat | ASTM E1356 | °F (°C) | 135 (57) | 138 (59) | 153 (67) | 162 (72) | 191 (88) |
| Heat Deflection Temperature | ASTM D648 | °F (°C) | 130 (54) | 131 (55) | 150 (66) | 165 (74) | 182 (83) |
| Tg DSC Ultimate | ASTM E1356 | °F (°C) | | | 190 (88) ² | | |

¹ 1 Hz, 3°C per minute.

² Additional post cure may be required; contact Technical Department for details.

³ Store PRO-SET® Epoxy resins and hardeners at room temperature in sealed containers until shortly before use. As with many high-performance epoxy resins, repeated exposure to low temperatures during storage may cause the resin to crystallize. If this occurs, warm the resin to 125° F and stir to dissolve crystals. Hardeners may form carbamation when exposed to CO₂ and moisture in the atmosphere for extended periods of time. Prevent carbamation by protecting hardeners from exposure until immediately prior to processing.

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